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ABSTRACT

The findings of a computer model designed to project the number and educational profile of young people leaving the school system to enter the labor force in Canada in the 1980's are reported. The four-tiered computer model utilized in the study projects elementary-secondary enrollment, college and university enrollment, "leavers" from the secondary school system, and "leavers" from the post-secondary system. The number and educational profile of young people in Canada has changed dramatically in recent years. A rapid increase in the number who are highly educated, combined with a decline in "new" jobs in the public sector, has caused unemployment and underemployment among some graduates, particularly in the humanities and social and behavioral sciences. The number of college and university graduates is expected to remain high until at least the mid-1980's. The labor market situation for some graduates may not improve until after that time. It is suggested that to aid students in the transition from school to the labor market, and to foster realistic student expectations, Canadian universities may want to improve their understanding of labor market conditions. Institutional researchers, as part of the planning system, could actively participate in this process. (SW)

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POST-SECONDARY GRADUATES AND THE LABOUR MARKET IN CANADA THE 1970'S AND 1980'S

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INTRODUCTION AND PERSPECTIVE

During the seventies demographic and economic trends have disrupted North America's education systems and labour market. Enrolment has been declining in elementary and secondary schools for some years. The post-secondary level faces this prospect for the 1980's, although university enrolment in some Canadian provinces is already decreasing.

In the labour force, a large influx of young job-seekers has contributed to high youth unemployment. Notably, the number who are well-educated has increased in recent years. Rapid growth of the manpower supply, combined with the recent economic slowdown, has produced labour market difficulties for the young: unemployment, underemployment and low job satisfaction are problems in most Western industrialized nations.

But which groups are most affected? How long will this situation last? A report entitled Out of School - Into the Labour Force, released by Statistics Canada in 1978, examined these questions. This paper, with some alterations, is based on that report. It is intended for insitutional researchers interested in the relationship between the educational system and the labour market, past and future.

Primarily, the paper reports the findings of a computer model designed to project the number and educational profile of young people leaving the school system to enter the labour force in the 1980's. It highlights changes in their educational characteristics and their impact on the labour force. Current youth unemployment is reviewed, with emphasis on the highly-educated. A very broad overview of present and possible future labour market conditions for the young in Canada is presented.

The author recognizes that education has a multiplicity of purposes, only one being to prepare individuals for employment. The focus here on the relationship between the education system and the labour force is in no way meant to imply that all students are

motivated solely by job prospects, or that all education should be conducted with that end in view.

In this paper, the term "college" refers to community colleges, technical institutes, and similar institutions. The term "university" refers to any degree-granting institution.

METHODOLOGY

The supply of manpower from the Canadian educational system is the ultimate result of a four-tiered computer model which projects: (1) elementary-secondary enrolment, (2) college and university enrolment, (3) "leavers" from the secondary schools system, and (4) "leavers" from the post-secondary system. Population projections are input to the model.

School "leavers" are defined as persons who were enrolled full-time during one academic year, but not the next. They leave the school system and are potentially available to the labour force. They may or may not be graduates. There are, of course, other sources of manpower, including immigration, persons leaving households to enter the job market, etc. However, the school system represents the largest single source of "new" manpower.

Analysis centres on implications of the changing size and educational characteristics of this manpower supply. Unfortunately, no complementary projections of demand were available. Nonetheless, recent and projected changes in the manpower supply are such they they warrant close inspection.

The findings are discussed in light of other data, including the growth of managerial, professional and technical jobs, teachers hired in recent years, employment of university graduates in industry, and a projection of the Canadian labour force into the 1980's.

PROJECTION OF POTENTIAL LABOUR FORCE ENTRANTS

Following are a few observations of expected changes in the annual supply of potential labour force entrants.

Their numbers - the total number of potential labour force entrants from all levels of the Canadian educational systems increased 60% between 1966 and 1976. This rapid increase resulted from the postwar baby boom. Numbers peaked at an estimated 615,000 in 1977, and are projected to fall to around 500,000 by 1986, as a consequence of the drop in births in the 1960's. By the mid-1980's approximately the same number of young people will be leaving school to seek work as in 1970.

Their education level - Secondary leavers have been and will continue to be more numerous than post-secondary counterparts. But the real difference has been the respective rates at which output from the two levels has increased. Between 1966 and 1976 the annual number of labour force entrants from secondary school rose only 26%, while those with post-secondary education increased 210%. By 1986 the number with secondary education will have shrunk to almost the 1966 level,, while those leaving post-secondary institutions will more than triple the 1966 total.

The education profile of job-seekers from the school system changed drastically in the past decade, and will continue to do so during the eighties. In 1966, one in five had attended or graduated from a post-secondary institution; by 1976, one in three, and by 1986 the proportion is projected to reach almost one in two. Thus, not only have their numbers increased at a rapid rate, but they are also much more highly educated han earlier generations.

Type of certification of post-secondary graduates - In Canada postsecondary graduates are those from universities, community colleges, technical institutes, and similar institutions. The projection of "school leavers" was not done by discipline. However, a survey of Ontario's 1975 college and university graduates indicates the type of certification with which they enter the labour force.

Data on graduates are misleading, since not all wish to work. Many continue their education, travel, or are involved in some other activity. For example, at the bachelor's level roughly 50% of Ontario's

1975 arts graduates enter the labour force, 60% of science graduates, and 80 of those from disciplines such as education, commerce, business administration, engineering, etc. The percentage among community college or technical school graduates in "career" programs is around 90%.

In 1976, of all the graduates who entered Ontario's labour force, 60% had undergraduate degrees, 10% graduate degrees, and 30% college "career" diplomas or certificates. From the total, roughly 14% had undergraduate degrees in arts, 7% in science, and 13% in education. This one-third of graduate labour force entrants, along with a few from the more general college and post-graduate programs, are bearing the brunt of current employment problems.

Educational attainment of male and female labour force entrants - There has traditionally been a marked difference in the education of male and female labour force entrants, young men generally being more highly educated. In 1966, one in twelve males had graduated from university, compared with one in twenty-one females. By 1976 the gap had closed, with one in ten of both male and female entrants holding degrees. An estimated one in eight is expected to have a degree in 1986.

It should be noted that these aggregate statistics are slightly misleading. Male graduates are more likely to have higher degrees (master's and Ph.d.). For example, in 1976 roughly 17% of the men entering the labour market with degrees and had a master's or Ph.d. compared with 10% of the females. Also, women still tend to take general arts and science, whereas men are more apt to hold a professional degree. But this, too, is changing, so the education gap between young men and women in rapidly narrorwing.

THE IMPACT OF SCHOOL LEAVERS ON THE LABOUR FORCE

The two prominent features of the postwar generation that have an impact on the labour force are their numbers and their high level of education. Thier numerical strength is such that they have started to predominate in the labour force, causing rapid growth and quickly changing educational characteristics.

Growth

During the past decade, Canada has had the fastest growing labour force of all Western industrialized countries, including the United States. Between 1966 and 1976, Canada's work force grew 36%, compared with 26% in Australia, and 25% in the U.S. But if unemployment is not to rise, an equally high rate of job creation is needed. And in fact, employment has been increasing faster in Canada htan in most Western countries; 21% from 1970 to 1976. The rate was 11% in the United States, 9.5% in Australia, and even less in other Western countries. Moreover, during the slow groth years of 1976 and 1977, only the U.S. had a higher rate. In 1978, job creation in Canada was again impressive -- a 3.4% gain over 1977. But the labour force expanded more quickly, and hence, unemployment has risen constantly during the past nine years, reaching 8.4% in 1978. In particular, the large number of young job-seekers contributed to youth unemployment - 14.5% in 1978.

As the number of students leaving the education system drops throughout the 1980's, so will the pace of labour force growth. It is projected to fall from the yearly average 3.6% during 1970-75, to 2.7% for 1975-80, 2.1% for 1980-85, and 1.4% for 1985-90. The decline in the number of young people seeking jobs is novel in recent experience, so its impact is difficult to judge. However, assuming a relatively (by historical standards) buoyant economy, the labour market for the young may improve in the mid to late eighties. Their unemployment rate may drop, but it will likely remain above the overall average, as it has traditionally.

Educational Attainment

But employment prospects for school leavers may depend to a great extent on their academic credentials. With the entry of highly educated young workers, and the retirement of older, generally less educated ones, the average educational attainment of the labour force increases dramatically. Based on the work reported here, the educational profile of the Canadian population and labour

force have been projected.[1] The projection assumes that the proportion of the young attending a college or university will decline to the mid-1980's and increase thereafter.[2]

Overall, an estimated one in eleven Canadian workers held a post-secondary diploma or degree in 1961. This rose to one in five by 1977, and is projected to reach one in 3.5 by 1990. But it is the young who are most highly educated. In 1977, one in three 25-34-year-old woriers were diploma- or degree-holders, compared with one in six over the age of 45.

Because of the increasing number of women graduating from colleges and universities and the rapidly rising proportin with full-time jobs, females constitute a prominent part of the highly educated work force. In 1961, 17% of workers with degrees were women. By 1977 the percentage had increased to 30%, and is expected to be 38% by 1990.

The same phenomena are occurring in the United States. The proportion of the American Labour force with post-secondary education rose from one- quarter to one-third between 1969 and 1977. It is likely to continue to rise fro the same reasons as in Canada - population and enrolment trends in the two countries have been very similar.[3]

THE YOUNG AND THE LABOR MARKET

But will there be enough jobs for the baby boom generation, and will these jobs require a high level of education? What do the 1980's hold for college and university graduates? Lacking a detailed and reliable manpower demand projection, a very general examination of trends must suffice.

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[1]Available in a soon-to-be-released Statistics Canada publication, "The Educational Attainment of the Population and Labour Force in Canada, 1961 to 2000".

[2]The post-secondary enrolment rate (total full-time enrolment related to the 18-24 age group) is assumed to drop from 19.6% to 1977 to 17.3% by 1985 and then rise to 18.0% by 1990.

[3]See Chapter VI in Out of School - Into the Labour Force, Statistics Canada, catalogue 81-570E.

Youth Unemployment

Large numbers of young people, combined with the economic slowdown in the mid-1970's and structural problems in the Canadian economy, have resulted in high youth unemployment. The rate among 15-24-year-olds went from 6.1% in 1960, to 10.1% in 1970, and 14.5% in 1978. (The trend was similar in the U.S., where the rate was even higher until 1977.) Between 1968 and 1978, employment among 15-24-year-olds increased a respectable 35.6% (or 3.1% a year), but the size of the labour force of the same ages grew 46.4% (or 3.9% annually). The difference represents the unemployed.

As well as a lack of sufficient economic demand to create jobs, structural problems contribute to youth unemployment. These include technological displacement, incadequate or obsolete skills, regional mismatches in manpower supply and demand, and a wide range of labour market rigidities which prevent are retard adpatation to change. Examples of such rigidities would be minimum wage laws or minimum entry wages in union contracts that do not allow wage adjustments that could facilitate the absorption of large numbers of young people. Perhaps generous unemployment insurance benefits also tend to keep wages high. One Ontario study suggested that in 1977 one-third of youth unemployment resulted from a lack of economic demand, the remaining two-thirds from structural problems. And of course, in a tight economy the inexperienced young are first to be laid off.

As the number leaving the school system to seek work falls in the 1980's, their overall employment prospects may improve. By the middle of the decade, the annual influx, which peaked in 1977, will have fallen to the 1970 leve. Numbers will continue to drop in the 1990's, maybe even creating a manpower shortage in some areas. But because much depends on the economy, future events are very difficult to foresee.

The Highly Educated Youth

Recent changes in the numbers entering the labour market from colleges and universities are dramatic. In 1966 an estimated 46,000 persons armed with a

degree or diploma left the school system to seek work in Canada. This more than doubled in ten years, reaching 98,000 in 1976. The number is projected to peak in the early 1980's around 110,000, and fall slowly to 105,000 by 1986. The cumulative effect of this increase is staggering. In 1977, there were 3.7 times as many diploma- or degree-holders in the labour force as in 1961 (the total labour force increased by a factor of only 1.6). By 1990, there will be 70% more workers with diplomas or degrees than in 1977 (the total labour force is expected to increase 29%).

But creation of jobs requiring a diplomas or degree has not kept pace. While no precise statistics on the number of such jobs are available, managerial, professional and technical occupations are an approximation. Between 1966 and 1975 employment in these occupations rose 5% annually, a very high rate compared with the overall yearly increase of 2.9% for all occupations. The rate fell to 3.5% in 1976 and 2.2% in 1977. Meanwhile, the number of labour force entrants from colleges and universities increased more rapidly - 12% annually between 1966 and 1971, falling to 4% to 5% in the mid-seventies, and 1.5% late in the decade. This discrepancy in the creation of professional, technical and managerial jobs, and the number of highly educated young job-seekers made it virtually impossible for graduates to obtain jobs comparable to those acquired by their counterparts in the 1960's.

One significant development has been the recent slowdown in public sector hiring - notably education and government. The public sector has traditionally been a major employer of university graduates. In the early 1970's, from 35% to 40% found jobs in education. The total public sector (education, government, parts of health and welfare) employed up to 50% of them. With declines in elementary enrolment since 1970, and secondary since 1976, the demand for new teachers has plummeted. The number hired directly from eduducational institutions fell from 30,000 in 1969 to 10,000 in 1976, and probably lower since then. Recruitment at all levels of government in Canada has been curtailed, severely restricting another type of employment. For example, federal hiring of university

graduates[1] peaked in 1975 at 1,122, fell to 1,000 in 1977, and will almost certainly be lower in 1978 and 1979.

The rapid decline in hiring in such an important sector, concomitant with a continued increase in university output, has contracted the labour market for graduates. Those in the humanities and social sciences, who depended heavily on the public sector for employment in the past have encountered the most difficulty, along with graduates in the biological sciences. Also, increased competition from graduates of the more job-oriented disciplines - professional degree and community college programs - has aggravated their situation.

But what are some of the ways in which this situation manifests itself currently, and what can we say about the future? Following are a few points.

(1) Unemployemnt rates:

Overall, the more highly educated continue to hold an employment advantage over their less educated contemporaries. For example, in 1977 the unemployment rate of 25-34-year-olds with a university degree was 3.8%; with a diploma or certificate, 5.1%; with secondary education, 7.9%; and with elementary education, 12.0%. The pattern was the same among 20-24-year-olds, but rates were much higher: around 8.4% for diploma- and degree-holders, to 22.7% for those with only elementary education. (American unemployment rates exhibit the same general configuration.) This suggests that some highly educated workers may be displacing the less educated by accepting jobs that do not require post-secondary certification.

(2) Unemployment among graduates

There is considerable variation in the type of certification held by graduates who are not working. A national Statistics Canada

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[1] Through post-secondary recruitment programs.

survey of 1976 post-secondary graduates showed that in October, 1977, approximately sixteen months after graduation, more bachelor's degree graduates than community college graduates were unemployed (9.5% and 6.7%, respectively)[1]. Surprisingly, a higher percentage of male than female university graduates were jobless (10.0% and 9.1%). The reverse was true among college graduates - 6.0% for males and 7.2% for females. As a benchmark, the national unemployment rate in October, 1977 was 7.3%, and among 15-24-year-olds, 13.7%.

These aggregate statistics can be misleading, as unempliyment rates vary by discipline. Among bachelor's degree graduates, the percent not working was highest in applied arts, social sciences, biological sciences, mathematics and physical sciences, and the humanities - in the 11% to 15% range. Engineering, health, and business and commerce displayed the lowest percentages - between 4% and 6%. Thus, graduates in some disciplines experienced unemployment rates equal to or above that of the entire 15-24 age group.

Unemployment rates were lower for graduates of most community college programs. Only those from applied arts, general arts and science, transportation, and the primary industries had rates in the 8% to 13% range. The technologies and computer science had the smallest percent out of work: 4.9% to 1.6% respectively.

(3) Starting salaries:

Another indication of the tighter job market is the decline of starting salaries for new graduates relative to the average wage paid in industry. Data show that in 1978 the starting salaries of "new" bachelor's graduates employed in industry were 18% above the average wage, but 12% below it in 1977. Starting salaries, of course, vary by discipline.

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[1]This calculation excludes all graduates who are travelling, continuing their education, or not working for some other reason and not seeking employment.

(4) Underemployment:

It seems almost certain that graduates in some disciplines are forced to accept positions that do not require the level of education they have acquired. Many no doubt had expectations out of line with labour market realities. The necessity of accepting jobs that do not allow them to obtain work experien œ in their chosen field may be the most serious dilemma facing many graduates, for long-term unemployment. The statistics Canada survey of Canadian college and university graduates in June 1978 asked if their jobs were related, partially related, or total unrelated t o their education. The results cannot be interpreted in an absolute sense, since it is difficult to define a "related" job. However, differences among disciplines are apparent.

Overall, community college graduates saw their jobs as being more directly related to their education than did university graduates. Only 11% of them stated their job was in no way related, compared with 21% of those with bachelor's or first professional degrees. There was substantial variation by discipline. The highest proportions of college graduates who found no relation between their training and their jobs were from fine, applied and performing arts (32%), business management and commerce (18%) and community and social services (17%). Among bachelor's degree-holders, the proportions stating their jobs were "not related" were highest in the humanities (31%), social sciences (30%), agriculture and biological sciences (27%), and fine and applied arts (23%). The lowest percentages were in the health professions (2%), engineering and applied sciences (8%), and business and commerce (12%). It is obvious that in many disciplines, most graduates do, in fact, obtain jobs related to their educational background. Only in a few fields are many compelled to accept jobs totally unrelated to their educational experiences. Furthermore, one could argue that education in some of these areas (e.g., the humanities) is not

intended to prepare students for work. However, were the graduates themselves aware of this?

Again, patterns are similar in the United States. Data from an American survey of 1975 graduates one year later provide a measure of underemployment. If the graduates were working in an occupation classified as clerical, craft, labour, sales, services or operative, and they stated their jobs did not require a degree, they were designated underemployed. Roughly one-quarter met these criteria. Some under-employment rates by discipline: humanities, 41%, psychology, 38%; social sciences, 38%; physical sciences and math, 26%; biological sciences, 26%; business and management, 21%; education, 16%; communications, 16%; health, 4% and engineering, 3%.

(5) Post-secondary enrolment shifts:

Some enrolment decisions are apparently related to the tight labour market. There has been a major shift away from the more general university disciplines toward job-oriented community college programs. For example, the university enrolment rate for Canadian males - total full-time enrolment related to the 18-24 age group - peaked in 1975 at 15.4%, and had fallen to 13.6% by 1977. This decline is expected to continue in the short-term. Their college enrolment rate - enrolment related to the 18-21 age group - has increased slightly since 1971 from 12.0% to 12.8% in 1977.

Enrolment rates for women rose until 1976 in both colleges and universities. In 1977 the female college rate continued climbing, but their rate at universities fell for the first time in recent history. This decline is expected to continue in the short-term.

In universities the fields where job shortages are most pronounced are experiencing the worst enrolment declines. In the 1977-78 academic year, full-time undergraduate enrolment in nursing fell 5.7% over the previous year, in education 4.7% and in arts 3.8%. Contrariwise, enrolment

in commerce and business administration rose 6.9%, and in engineering and applied sciences, 6.4%. Overall, Canadian university full-time enrolment fell 0.6% in 1977, and is expected to fall around 2% in 1978. College enrolment rose 5.8% in 1977, and a further increase is expected in 1978.

(6) The future:

No major improvement in the labour market is foreseen for the early 1980's. In Canada, elementary-secondary enrolment will continue to fall until at least the mid-1980's, and perhaps longer. Hence, the education sector will not open up again as a major employer before the late eighties. This refers to Canada as a whole, and there may be major variation by province. For example, elementary enrolment may start increasing in the early 1980's in provinces with high immigration such as Alberta and British Columbia. In general, Governments will likely continue to curtail spending in an attempt to check inflation, so new public sector employment opportunities will likely be meager, at least through the early 1980's. Employment prospects in the private sector are more difficult to foresee, and no detailed analysis is offered here. However, substantial expansion would be required to offset tightening in the public sector. Furthermore, no significant reduction in the number of young post-secondary-educated job-seekers is foreseen until the mid-1980's. It is likely that graduates of some disciplines will be forced to adjust to these new labour market conditions. In the mid to late 1980's, opportunities may improve, as the baby-boom generation ages, and competition among new graduates weakens. Even then, however, the large and highly educated postwar generation will occupy the positions just ahead of these graduates, and advancement may be slow. It is unlikely that the labour market for graduates in some disciplines will return to the boom conditions of the 1960's.

CONCLUDING COMMENTS

Despite this somewhat gloomy analysis, it must be remembered that for many, a university degree continues to provide an edge in the labour market. Clearly, many post-secondary programs offer the possibility of rewarding careers and upward mobility, as well as providing society with highly skilled, responsible workers. As mentioned earlier, most comments in the paper refer only to approximately one-third of post-secondary graduates; the remainder continue to enter a reasonably hospitable labour market. The major change is that in the 1960's and early 1970's it was implicitly assumed that social and economic gain were associated with any university degree. This assumption can no longer be made. Today, many programs are of relatively less economic benefit than they were in the 1960's. Potential students must consider much more carefully their motives for enrolling at the post-secondary level, and the expected benefits. There are, of course, many intangibles to be derived from post-secondary education that are in no way related to economics. Nonetheless, it is likely fair to say that many students emerged from the post-secondary system in the 1970's with totally unrealistic labour expectations, often leading to bitter disappointment and frustration.

The theory of "human capital", popular in the 1960's, saw education as a principal factor in increased productivity and a country's well-being.[1] For the individual, higher education was viewed as professional or occupational training, probably undertaken more for its economic than cultural benefits. But in the face of declining employment opportunities for graduates, many analysts' belief in the theory of human capital has given way to a concern that there may be more young degree-holders than jobs, requiring that level of education.

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[1]For example, see G.W. Bertram, "The Contribution of Education to Economic Growth", Economic Council of Canada Staff Study No. 12, 1966.

Yet if the theory of human capital is being largely discareded, what is replacing it as a rationale for post-secondary education? Also, what are the expectations of studnets enrolling in the more general programs? Are they in line with current reality, or are they still basedon obsolete beliefs? The labour market difficulties encountered by many graduates are no doubt partially responsible for the recent re-examination of the objectives and purposes of higher education.

In a discussion paper entitled, "The University on the Road to 1984", Dr. Ian MacDonald, President of York University in Toronto, stated:

> I still believe that we are fundamentally lacking a position on the basic educational philosophy and purposes of universities in today's society. The importance of being in a position to respond firmly and positively to the public is impressed upon us every day. As recently as this past week, Statistics Canada forecast a glut of university graduates that could last fifteen years. We should not only be in a position to debate that gloomy outlook, but to suggest how the economy can be transformed to avoid it.

While I don't personally believe in the fifteen-year time horizon - it is likely to be shorter - I do agree with the major point. The favourable labour market conditions of the 1960's and early 1970's produced a strong link in the public mind between post-secondary education and career chances. The public's view of postsecondary education is probably still strongly influenced by the success or failure of graduates in the labour market. It might be of considerable benefit to the university community to have a strong and widely-known philosophy of education, as well as a good understanding of education-labour market relationships. Such knowledge would not only allow post-secondary institutions to respond more positively to the public, but would also help them assist students in the school-to-work transition. Furthermore, students could perhaps be provided with a clearer understanding of the objectives of various post-secondary programs.

Predicting employment prospects for specific disciplines five or ten years in the future is difficult, if not impossible. However, a general outline of likely labour market conditions in broad areas of specialization may be possible, and should be attempted. Such work has been started by the Forecasting Group in the Ministry of State for Science and Technology.

Institutional researchers, as an integral part of the palnning system, should be concerned with these aspects of college and university planning. The expertise required to conduct original labour market studies, or to interpret other findings can often be found in offices of institutional research.

As well, perhaps more effort should be made to publicize the education philoseophy of the university. Analyses such as the one presented here being by nature labour market-oriented, do not allow a discussion of the more intagible benefits of education. Such benefits should not, however, be buried under economics. As a lay person in the area of education philosophy I would welcome a public discussion that would place more emphasis on non-economic aspects.

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